

CLAIMS

What is claimed is:

1. A method comprising:
 - maintaining a first database with a plurality of entries;
 - 5 maintaining a second database;
 - bulk updating the second database with the plurality of entries;
 - receiving a new transaction request;
 - updating the first database with the new transaction request;
 - transactional updating the second database with the new transaction request
 - 10 before the bulk updating is complete.
2. The method of claim 1, wherein the first database is associated with an active device and the second database is associated with a standby device.
3. The method of claim 2, wherein said bulk updating occurs only during a booting or reconciliation phase of the standby controller.
- 15 4. The method of claim 2, wherein the bulk updating includes sending a plurality of bulk update messages from the active device to the standby device.
5. The method of claim 2, wherein the transactional updating includes sending a transaction update message from the active device to the standby device.
- 20 6. The method of claim 1, wherein the plurality of entries are grouped into a plurality of groups; and further comprising maintaining an indication of whether the second database needs updating with a particular group of the plurality of groups.

7. The method of claim 6, wherein the first database is associated with an active device and the second database is associated with a standby device; the bulk updating includes sending a plurality of bulk update messages from the active device to the standby device; and one of the plurality of bulk update messages includes a particular
5 plurality of the plurality of entries belonging to a single one of the plurality of groups.

8. The method of claim 6, wherein the first database is associated with an active device and the second database is associated with a standby device; the bulk updating includes sending a plurality of bulk update messages from the active device to the standby device; and one of the plurality of bulk update messages includes entries from at
10 least two of the plurality of groups.

9. The method of claim 1, wherein the first database is associated with an active controller of a switching system, and the second database is associated with a standby controller of the switching system.

10. The method of claim 9, wherein said bulk updating occurs only during a
15 booting or reconciliation phase of the standby controller.

11. The method of claim 1, further including maintaining an indication of whether the second database needs updating with a particular entry of the plurality of entries.

12. The method of claim 1, further comprising receiving a first and second plurality of additional transaction requests after the bulk updating has commenced;
20 updating the first database with the first and second plurality of additional transaction requests; bulk revising the second database with the first plurality of additional transaction requests; and transactional revising the second database with the second plurality of additional transaction requests.

13. A computer-readable medium containing computer-executable instructions for
25 performing the method of claim 1.

14. A method comprising:
maintaining a plurality of groups of entries;
maintaining an indication of which of the groups of entries is subject to a bulk
update technique;

5 receiving a new request;
determining whether a particular group of entries to which the new request
belongs is subject to the bulk update technique, wherein at least one entry of the group of
entries remains subject to the bulk update technique; and
initiating a transactional update for the new request if the particular group of
10 entries is not subject to the bulk update technique.

15. The method of claim 14, further comprising initiating a bulk update of said at
least one of the group of entries remaining subject to the bulk update technique.

16. The method of claim 15, wherein said initiating the bulk update and said
initiating the transactional update are performed by separate threads of one or more
15 processes.

17. The method of claim 15, wherein said initiating the bulk update and said
initiating the transactional update are performed by separate hardware threads.

18. The method of claim 15, wherein the initiating the bulk update for the new
request includes sending a bulk update message.

20 19. The method of claim 14, wherein the initiating the transactional update for the
new request includes sending a transactional update message.

20. The method of claim 14, further comprising initiating a first bulk update
including the new request if the particular group of entries is subject to the bulk update
technique.

21. The method of claim 20, further comprising initiating a second bulk update for the particular group of entries prior to said receiving the new request.

22. The method of claim 14, further comprising receiving a transaction acknowledgement message for the particular group of entries; and updating the indication
5 for the particular group of entries to reflect that the particular group of entries is not subject to the bulk update technique.

23. The method of claim 14, further comprising receiving a transaction acknowledgement message for the particular group of entries; and initiating a bulk update
10 of said particular group of entries in response to said receiving the transaction acknowledgement message and determining that at least one of the entries of the particular group of entries requires synchronization.

24. The method of claim 23, further comprising receiving a second transaction acknowledgement message for the particular group of entries; and updating the indication
15 for the particular group of entries to reflect that the particular group of entries is not subject to the bulk update technique in response to said receiving the second transaction acknowledgement message and to determining that no entries of the particular group of entries requires synchronization.

25. The method of claim 14, wherein the transactional update includes sending a transactional update message from an active controller to a standby controller.

20 26. A computer-readable medium containing computer-executable instructions for performing the method of claim 14.

27. An apparatus comprising:

an active database comprising a plurality of entries and an indication of which of the plurality of entries require bulk synchronization;

an active controller bulk updater to compose a plurality of bulk update messages including a group of the plurality of entries indicated as requiring bulk synchronization; and

an active controller transactional updater to compose a plurality of transactional update messages prior to the indication indicating that none of the plurality of entries requires bulk synchronization.

28. An apparatus comprising:

means for maintaining an active database comprising a plurality of entries and an indication of which of the plurality of entries require bulk synchronization;

means for composing a plurality of bulk update messages including a group of the plurality of entries indicated as requiring bulk synchronization; and

means for composing a plurality of transactional update messages prior to the indication indicating that none of the plurality of entries requires bulk synchronization.

29. A system comprising:

an active controller including:

an active database comprising a plurality of entries and an indication of which of the plurality of entries require bulk synchronization;

an active controller bulk updater to compose a plurality of bulk update messages including a group of the plurality of entries indicated as requiring bulk synchronization; and

an active controller transactional updater to compose a plurality of transactional update messages prior to the indication indicating

that none of the plurality of entries requires bulk synchronization;
and

a standby controller including:

a second database;

5 a standby database updater to receive the plurality of bulk update
messages from the active controller, to extract the group of the
plurality of entries from the received bulk update messages, and to
update the second database with the plurality of entries.

30. The system of claim 29, wherein the standby controller further includes a
10 standby database transactional updater to receive the plurality of transactional update
messages and to update the second database.

31. The system of claim 29, wherein the standby database updater further receives
the plurality of transactional update messages and updates the second database.

32. The system of claim 29, wherein the active controller transactional updater
15 further composes a second plurality of transactional update messages after the indication
indicating that none of the plurality of entries requires bulk synchronization.

33. An apparatus comprising:

means for maintaining a first database;

means for maintaining a second database;

20 means for performing a bulk synchronization of the first and second databases;

and

means performing a transactional synchronization of the first and second
databases prior to completion of the bulk synchronization of the first and second
databases.

34. An apparatus comprising:

means for maintaining a plurality of groups of entries;

means for maintaining an indication of which of the groups of entries is subject to a bulk update technique;

5 means for receiving a new request;

means for determining whether a particular group of entries to which the new request belongs is subject to the bulk update technique, wherein at least one entry of the group of entries remains subject to the bulk update technique; and

10 means for initiating a transactional update for the new request if the particular group of entries is not subject to the bulk update technique.